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young from their Tails. I do not remember that I ever observed any thing of them but what a good and full account is given of in a Book entituled *Gammalogia*, of Phil. Jac. Sachs shewed me by Dr Plot; if upon perusal of that Book, any thing occurs that you desire farther satisfaction in, I shall be ready to give you the best information I can, if you send any Queries to

Your Humble Servant,

Ch. King.

IV. Part of Monsieur Poupert's Letter to Dr Martin Lister, F. R. S. concerning the Insect called Libella.

IT is a flying Insect, called in *France Demoiselle*, from the variety of its Colours, transparency of Wings, and its stately Flight: They also call it *Perle*, from the figure of its Head, or rather from the roundness and colour of its Eyes. It is called by the *Latins Libella*, perhaps because in flying it carries its Body Horizontal; not that it does so always, for it is divided from space to space into rings, by means of which, it composes Angles with its body, whose lines it can make longer or shorter as it finds occasion. These different sections serve to the motion of this Insect, as we know the Tail doth in Birds, and as they are lengthened or contracted, they carry themselves according to their various inclinations, the point or center being fixed between their Wings. All Modern Naturalists know that the great sort of *Libelle* are generated under water, wrapt up in a Membrane, which at length dissolves and turns to nothing. This *Phenomenon* is not
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only proper to a great number of Insects, but Man, the most excellent of all Creatures, swims for nine months in his Mothers Womb.

When the young *Libellæ* are ready to quit their case, and appear to the world in their finest ornaments, it is admirable to see the way they use to clean themselves ; it dilates its Belly, that the water may enter in at the *Anus* upon the Intestin, then it compresses it self to circulate the water, which it expels, and shoots out a great way : It receives more water into its Intestins, and ejects after the same manner. It continues this action with great force for some time, and makes the water circulate in the Vessel, all which motions may be compared to the breathing or panting of a Horse who has been run hard.

As Reason without Experience sometimes give us notions of things seeming natural, so I thought they took the Water in at their Mouths to syringe it thro the *Anus* ; but to satisfy my self of matter of fact, I put a *Libella* upon my Finger, which I held fast by the Legs. I dipt it under Water with its Head downwards, the *Anus* being even with the Water, so that it might get into the Intestines, which it cast out a good way ; I drew my Finger a little farther out, so that the Water could not enter at the *Anus* ; the Fly continued its motion, but ejected no Water. My opinion is, she does this in order to cleanse herself from all Excrements in that Element, where she leaves her old Robes, to appear in a more glorious and new form in the open Air.

There are a great number of small vessels which closely unite the body of the *Libella*, to its case ; it is necessary that these be dry, that they may the sooner break, when it makes its efforts to get out of its case, which cannot come to pass as long as there is any aliment in the Intestin to afford Nourishment to the case
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and its strings, and perhaps this is the reason why no Insects will take any food, when they are going to change their forms ; And if they do not cleanse themselves, as the *Libella's* do, yet they stay a great while longer before they change, without any ailments ; the *Libella* is no longer than half a day in quitting its Case, and taking its flight. It is wonderful how it rends and cuts the air, making a thousand whirlings with its extraordinary quickness ; for to know the Cause, we must cut the Skin of the *Libella* (which is very fine) all along the back, and be sure to bear the point of the Scizzars upwards, lest we cut the interiour parts. We must also draw the Skin to the right and left hand, and fix it with Pins upon a Table, that we may discover the 16 Muscles which lye between the Wings and the Legs, 8 of each side, of the thickness, length, colour, and almost figure or shape of a grain of Barley, contiguous to one another, and without adherence. We may observe that each Muscle is composed of many fleshy Fibres, which do not seem to be joyned together, but terminate round at the ends of the Muscle where they compose a common Tendon, so that one might discern any of these Fibres to be a small Muscle, of which the chief is composed. And if we are not already satisfied that the Muscles of Men are composed of very many other Muscles, this minute structure may be sufficient to excite us to enquire into the truth of that matter.

The use of these Muscles seem to me very particular, for the same Muscles which flutter the Wings, serve also to stir the Legs ; The upper Tendons of the Muscles enter into the Wings, I believe the same which the Fibres compose, and the lower enter a good way into the Legs, yet the contrary motions of these Organs are not at all hindred ; for as long as the Wings play, the Feet lye still and serve for a prop to the Muscles which

stir the Wings. And when the Feet are in action, the Wings are quiet, and in their turn serve to support the Tendons which direct the Feet.

After having considered the structure of all these Muscles, we ought to examine those of the Eyes, wherein there is something which deserves the attention of the Curious. They are like two thick oblong Pearls, which begin at the fore-part of the Head and end in the hinder part. Their outer Membrane is dry, thin, transparent, and inclose a small soft Ball, filled with a very black Liquor, two small Canals filled with Air, enter into each of these Eyes, and run along to the great Channel, also furnish'd with air, which accompanies the Intestine from the Head to the Tail; to discover them without trouble, if we should leave a *Libella* dead for some days, the internal parts will putrify and come to nothing, but the Canals will remain entire, and as solid and firm as they were before.

This structure made me at first think that the *Libella* could drive the Air contained in these Canals into the Eyes, to give it a greater convexity to behold objects that are very near, and on the contrary the Air is forced out of the Eyes again, to flatten them when they look at remote objects; and my conjecture is not altogether frivolous, for having blown into the thick Canals which are about the middle of the Body, the Eyes became considerably tumified, and by letting the air return they became flat again. I shall some time send you the parts serving to Generation of this Animal—Till then I am,

S I R,

*Your most humble, and
most obedient Servant,*

Poupart.

V. Part